

# Nelson County Broadband Project

## Project Overview

The Nelson County broadband project is the design and construction of a combined fiber optic and wireless middle mile network whose objective is to provide a state of the art high speed network backbone generally through the center of Nelson County from north to south. This network backbone has access points from which individual service providers can tap into the Nelson County fiber and distribute their services to residences and businesses within Nelson County. There are additionally four wireless communication towers that will be interconnected to the fiber backbone for “wireless backhaul” to the World Wide Web and to provide better wireless coverage to the County. The project is funded by Federal stimulus funds, Commonwealth of Virginia block grants and by local set aside funds.

## Why Does Nelson County Need To Do This?

- To provide the citizens of Nelson County faster, cheaper, and better access to high speed voice, video and internet communications.
- To provide upgraded connectivity for public safety, education, and other key county services.
- To enable current and future service providers (voice, wired and wireless, video and internet) greater ability to provide upgraded services to their customers and a path for extending their reach to under-served or not served areas of the county
- No one else is likely to bring this type of network to Nelson County within the foreseeable future.

## What Has Been Going On and What Is Coming Up?

All of the preliminary steps such as developing an entity to govern the network, (NCBA); developing the policies and procedures for assuring a level playing field for all service providers; designing the network; procuring all permits and environmental approvals; developing, issuing and evaluating requests for proposals and contracts for materials, construction, towers, network operations and all other bits and pieces required for an operational network; interfacing with CVEC and the Virginia Department of Transportation (VDOT) to make way for the new network infrastructure and last but certainly not least administering two funding grants and their associated documentation.

The County has deployed the network operations center HUT at the Courthouse and the adjacent tower is constructed. There will be continued work on both as the network gets closer to launching operations.

The next visible step is the construction of the fiber network. Materials for construction have and are being ordered and delivered to a secured area for storage during construction. Construction is

awaiting VDOT issuing the final permits that are eminent. The construction will all be underground within the VDOT right of way adjacent roadways within the County including Route 29.

There will be some disruption of traffic and land disturbance during the construction that cannot be eliminated. The MasTec project manager is well aware of the traffic, restoration and land disturbance issues that the citizens have endured in the past and will make every effort to diminish the impact of construction on the citizens. Inspectors from VDOT and Icon Engineering, Inc., NCBA's engineering firm, will be involved daily with construction and restoration. All vehicles and personnel will have identifying signs and ID's that state they are working for Nelson County to assure the Nelson County deployment is not confused with other contractors working in the area.

The construction firm selected through a competitive process where nine responses were returned is MasTec North America.

Several Tower sites have been selected and leases secured and the environmental and permitting processes are underway for construction between now and February.

## **Who Is Doing What?**

The Nelson County Board of Supervisors (BOS) are being apprised regularly and are making and approving critical path actions required to keep the project on time and on budget. The BOS formed the Nelson County Broadband Authority to administer the network per Virginia statute.

The Nelson County Broadband Authority (NCBA) once formed has developed the network governing criteria, established operational policies and procedures, and administered the grants. The Broadband Authority appointed an advisory committee to represent the interests of both public and private users of the network.

The NCBA Advisory Committee then appointed a subcommittee that is independent of any potential conflict(s) with service providers or network operators to manage the many documents and contracts required to deploy the network and to then make recommendations to the NCBA or BOS for approval. The Subcommittee has been actively engaged in conference calls, interviews, reviews, development and review of documents, and while always with the mandate to protect the interests of the citizens of Nelson County.

The Nelson County staff is administering the day to day operations such as technical issues, adherence to procurement policies, Legal reviews of documents and contracts, and active participation in all aspects of the project management. The Nelson County staff is an integral part of the Advisory and Subcommittee activities.

## **When Will It Be Finished?**

The construction of the fiber network is currently to be complete in the early spring of 2012. The towers should be in the same time frame. The project is expected to be complete, tested, turned up and operational by the summer of 2012.

## Project History

Nelson County has been vigorously pursuing broadband for its businesses and residents. The Nelson County Board of Supervisors currently serves as the Broadband Authority. The Board of Supervisors appointed a Broadband Advisory Committee to provide advice to the Board of Supervisors, County Administrators, and the Broadband Project Management Team (consisting of County staff and project consultants) towards the development and implementation of the Nelson County Broadband Project.

Below is a synopsis of the work completed to date, culminating in the receipt of funding from the American Recovery and Reinvestment Act.

**2005:** Virginia Tech drafted a preliminary technology report that included:

- Study of County topography
- Identification of private sector service providers and document market penetration
- Identification of the opportunities to coordinate with the school system and existing strategies and resources
- Identification of the opportunities to coordinate with private sector service providers – we do not want to compete with the private sector
- Encourage expansion of current levels of service, then, if necessary, offer service so that as many citizens as possible have access to broadband
- Identification of future technologies that might be applicable
- Identification of pilot project(s) applicable

The Economic Development Authority hosted a business development team from Verizon at its meeting in September 2005, who outlined Verizon's criteria for DSL deployment.

**2006:** The Economic Development Authority funded a county-wide broadband survey in Nelson County. The regional broadband study is focused on three areas: economic development, education/telemedicine, and public safety. The survey answered the questions: where do we have broadband access and where is it needed/desired to further economic development opportunities, education/telemedicine services, and public safety?

**Spring 2006:** A Broadband survey was mailed to 7,940 households in Nelson County and 4,689 households in Elkton – the two pilot areas for the study – with 509 completed surveys returned. The survey findings indicated that:

- More than 60% of organizations have an Internet connection and all employees are accessing the Internet
- More than 76% of the respondents use dial-up as their primary means of accessing the Internet
- More than 96% use the Internet for email, followed in high percentages for browsing, research, banking and on-line ordering

- More than 59% of respondents were not satisfied with their Internet speed/service
- More than 43% were willing to pay more for higher quality and faster Internet access
- More than 74% indicated that better Internet access is vital to them and/or their business over the next five years and
- More than 90% believe they and their business would benefit from affordable broadband access

**December 2006:** The County applied for planning funds from the Virginia Department of Housing and Community Development's Rural Broadband Initiative.

**January 11, 2007:** The County received notification that it was the first in the Commonwealth to receive a \$25,000 planning grant. The County subsequently received two additional planning grants from DHCD, completing the plan that led to the successful completion of the round one stimulus funding.

**March 25, 2010:** Nelson County was awarded \$1,826,646 from the American Recovery and Reinvestment Act, or stimulus bill, to expand broadband internet service in rural areas of the County. This is the first round of Recovery Act funding, aimed at expanding broadband access to help bridge the technological divide and to create jobs by building internet infrastructure. The funding for the Nelson County Broadband Project was announced March 25, 2010 by the U.S. Department of Commerce. More than 1800 applications were submitted for the first round of Recovery Act funding, and only two Virginia localities were awarded funds.

Board of Supervisors Chairperson Connie Brennan said, "This project allows Nelson County to enhance our quality of life as well as create jobs and lay the groundwork for long term sustainable economic growth." She touted the efforts and the leadership demonstrated by the Board of Supervisors, Economic Development Authority, Virginia Department of Housing and Community Development, the Broadband Project Management Team, County staff and the project consultants, ICON Engineering. It is important to note that while this project will improve and expand the areas served by high speed service, not all County residents and businesses will be served.

The project is expected to take no more than two years to complete. Nelson County is ready to begin the request for proposals process now that funding has been secured. Private provider interest has already been determined through the preliminary request for interest surveys as well as meetings with interested service providers.

The Nelson County project invests in open access infrastructure to enable private provider expansion of last mile services to new areas, higher speeds of services and a choice of providers. The project is designed to provide a fiber optic network and towers from the north to the south end of the County, linking the communities of Afton, Avon, Lovingsston, Colleen, Tyro and Massies Mill. Backhaul will be augmented in the more difficult to reach areas by microwave. The network will initially pass approximately 170 businesses and 805 residences directly with fiber and wireless, and enable an additional 92 businesses and 750 residences to be served via wireless technologies. The network will facilitate the delivery of more cost effective bandwidth to schools, municipal and state facilities (22 total community anchor facilities) within reach of the proposed infrastructure. Total

critical community facilities to be served via fiber and or wireless include: 14 municipal/education facilities; 6 public safety facilities; 3 healthcare providers; 4 community centers and a library, and 3 private provider facilities for interconnection. The project will deliver increased bandwidth to the key institutions located along the fiber optic backbone through direct fiber connections, offering bandwidth of 100 Mbps per facility, delivering greater amounts of bandwidth at a much lower cost. Even with this build out of infrastructure, not all County businesses and residents will be served by all service providers.

With funding from the Virginia Department of Housing and Community Development, a committed team of stakeholders comprised of representatives from local government, private businesses, residents, healthcare providers, the school district, the local electric cooperative and incumbent cable and wireless providers worked for nearly four years to develop a fiscally responsible implementation plan. Assistant Secretary for Communications and Information and National Telecommunications and Information Administration's Administrator Lawrence E. Strickling noted, "...the strongest proposals are the ones that have taken a truly comprehensive view of the communities to be served and have engaged as many key members of the communities as possible in developing the projects."

Economic Development Authority Member Natt Hall commented on the economic impact of the project. "Market survey results show that over 60% of residents rely on dial-up for Internet access, limiting opportunities for telecommuting and distance learning. There is no higher education facility to support the transition from high school to college, or for adult continuing education. The broadband network will allow the County to compete for new businesses, support and grow existing businesses, ensure the future sustainability of County growth, and allow —remotell businesses to increase visibility beyond County borders through eCommerce and web marketing. Access to high speed services will enable home-based business to start up, will attract higher wage jobs and new businesses, and enable access to distance learning content to augment higher education and training gaps, as well as decrease the 60% out-commute rate. "

County Administrator Steve Carter described the project. "Installation of a fiber optic backbone from Afton to Colleen in Nelson County will enable the provision of affordable broadband communications providing for the provision of last mile services, encouraging competition and economic development, growing existing business, attracting new business and enabling home based business, telework and telemedicine.

## **NCBA Project Glossary:**

**Backhaul:** Internet access to the County network (connects the NCBA middle mile network to the outside internet)

**CVEC:** Central Virginia Electric Cooperative, the local power utility and pole owner

**HUT:** A small secured building for housing service provider and Nelson County electronics

**Middle Mile Network:** The whole NCBA project is a middle mile network. A mixed fiber optic and wireless network that provides transportation of signals (voice, video and data) to handoff (access) points for service providers to connect to homes and businesses. A middle mile network does not provide services directly to homes and businesses

**NCBA:** Nelson County Broadband Authority established by the Nelson County Board of Supervisors per Virginia law and oversees and operates the middle mile network.

**Network Operator:** The entity that operates and maintains the network

**Network Turn-Up:** Turn up is an industry term that denotes the time when the network is energized and the system is working. Once the network is tested and signal transport is within proper specifications the NCBA will begin to provision the service providers for their delivery of services to the Nelson County citizens and businesses.

**Service Providers (Last Mile Provider):** Independent service providers that businesses and households would contract with for internet, video (TV) or voice (wired or wireless) services. NCBA has been communicating with for some time and will begin contracting with service providers as the network launch nears.

**VDOT:** Virginia Department of Transportation